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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,838	11/26/2003	Suan Jeung Boon	303.601US3	8165
21186	7590	03/10/2006	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH 1600 TCF TOWER 121 SOUTH EIGHT STREET MINNEAPOLIS, MN 55402			MITCHELL, JAMES M	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,838

Applicant(s)

BOON, SUAN JEUNG

Examiner

James M. Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 10-26 and 34-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 27-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/5/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to applicant's election filed December 5, 2005.

Election/Restrictions

2. Claims 10-26 and 34-50 are withdrawn¹ from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on December 5, 2005. The traversal is on the ground(s) that a substantive office action was made on claims 1-9 and 27-45, and that this evidences no serious burden. This is not found persuasive because the restriction requirement was due to new claim limitations added by applicant's amendment after the office action. Because the limitations were never considered, the previous rejection does not establish that there was no burden. Moreover, since applicant claimed different types of adhesive claimed independently, and alternatively since a method of forming holes in an adhesive to form contacts is independent and distinct from forming an adhesive over the contacts, the requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

¹ Pursuant to 37 C.F.R. 1.121, applicant in his next response must indicate the correct status identifier (e.g. withdrawn, new etc.) for each claim or applicant's response will be treated as intentionally non-responsive.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1- 4, 6, 8, 9, 27-29 and 31-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin (U.S. 6,103,552).

5. Lin (Fig. 1-5) discloses:

(cl. 1, 27, 28) a method of packaging comprising: applying an adhesive (51) to a first side of a finished wafer(30), the first side of the finished wafer having at least one die (Abstract), the adhesive being one or more of an elastomer (Col. 1, Lines 59-60) applied in fluid form (Col. 2, Lines 63-66), a thermoplastic material, or a pressure-sensitive film; and forming an array of conductive elements (11) within the adhesive, the array of conductive elements electrically coupled to an array of connection pads (5, 7) on the at least one die);

(cl. 2, 4) applying an adhesive (51) to a first side of a finished wafer, the first side of the finished wafer having at least one die, the adhesive being an elastomer applied in fluid form; processing the adhesive to create an array of openings therein (52), the array of openings providing access to an array of connection pads (e.g. 41;Fig. 4-5); on the at least one die; and substantially filling the array of openings with an electrically conductive material (11);

(cl. 3, 9) the method is performed in the order presented (Fig. 1-5);

(cl. 6, 33) singulating the at least one die from the wafer (Abstract) forming individual flip chip package;

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- (cl. 8) the method further includes curing adhesive (Col. 4, Table I);
- (29) forming openings in the adhesive layer includes forming openings by laser cutting, chemical etching, or die cutting (Col. 5, Lines 37-40 & 64);
- (cl. 31) forming an array of conductive elements includes forming an array of solder balls (12);
- (cl. 32) applying adhesive as a film (Col. 2, Line 67).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. 6,103,552).
8. Lin discloses the elements stated in paragraph 5 of this office action, but does not appear to explicitly show that its solder are columns.
9. However, applicant has not disclosed that the dimensions are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. In any case. As such, forming solder balls as columns would have been obvious, since it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237

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(CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. 6,103,552) in combination with Kim et al. (U.S. 6,903,451).

11. Lin discloses the elements stated in paragraph 5, but does not appear to show applying a protective coating to a second side of the wafer.

12. Kim (Fig. 24) utilizes applying a protective coating (82) to a second side (e.g, bottom) of the wafer.

13. It would have been obvious to one of ordinary skill in the art to incorporate applying a protective coating to a second side of the wafer of Lin in order to protect wafer and eliminate defects as taught by Kim (Col. 6, Lines 25-35).

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. 6,103,552) in combination with Okuno et al. (U.S. 6,063,646).

15. Lin discloses the elements stated in paragraph 5 of this office action, but does not explicitly disclose that the flip chip is connected to a receiving support.

16. Okuno discloses mounting chip to a receiving support ("printed circuit board"; Col. 4, Lines 32-35).

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17. It would have been obvious to one of ordinary skill in the art to the chip of Lin connected to a receiving support to form the package on a printed circuit board as taught by Okuno (Col. 4, Lines 32-35), such that the chip is integrated into a system (e.g. computer).

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jmm
February 23, 2006


CARL WHITEHEAD, JR.
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